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**BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES**

Application Number: 10/688,033
Filing Date: October 15, 2003
Appellant(s): MCDOUGALL ET AL.

James W. Babineau
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 11 September 2006 appealing from the
Office action mailed 03 January 2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is substantially correct. The changes are as follows:

Claims 37 and 38 stand rejected under 35 U.S.C. § 103 (a) as obvious over Higashinaka in view of Suzuki et al., US 5,294,469 ("Suzuki").

Appellant's brief presents arguments relating to claims 28, 30-32, 34 and 43-46. This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,515,583	Higashinaka	5-1996
6,136,437	Reither et al.	10-2000
5,294,469	Suzuki et al.	03-1994
2005/0282452 A1	Love, III et al.	12-2005

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claims 23-34, 36, 40-46 and 48 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashinaka (US 5,515,583).

A woven hook fastener product including a fabric base (2) having ground yarns and comprising interwoven warp yarns and filling yarns extending respectively in warp and filling directions and hook filaments interwoven with the fabric base and forming hooks extending from one side of the fabric base for engagement with loops (Figs. 1-7, 9 and 11). Higashinaka fails to disclose that a preferred embodiment where the mean hook height is less than about 6.0 times a nominal diameter of the hook filaments. However, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to have the hook filaments extend from a near side of the fabric base to a mean hook height of less than about 6.0 times a nominal diameter of the hook filaments since the range of mean hook height for example I varies from 1.3 mm to 3.6

Art Unit: 3677

mm and the nominal diameter of the hook filament is 0.2 mm (C. 11, L. 21-26) and when considering the lowest means hook height is less than about 6.0 (6.5), example 10 has a height of 2.0 mm and the nominal diameter of the hook filament is 0.34 mm (C. 12, L. 58-67 and column 13, lines 1-5) and when considering the lowest means hook height is less than about 6.0 (5.9) and example 11 has a height of 1.8 mm and the nominal diameter of the hook filament is 0.34 mm (C. 13, L. 25-39) and when considering the lowest means hook height is less than about 6.0 (5.3).

Higashinaka also discloses that:

- Each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated by a span, measured along a line segment between centers of the hook filament at a near surface of the fabric base, and wherein each hook has a stance ratio, defined as a ratio of the span of the hook to an overall height of the hook from the near surface of the fabric base, of at least 50 percent (Figs. 1-7, 9 and 11).
- The stance ratio is at least 55 percent (Figs. 1-7, 9 and 11).
- Each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated in both warp and filling directions (Figs. 1-7, 9 and 11).
- The fabric base has an overall thickness, exclusive of the hook filaments, of less than about 0.010 inch (C. 5, L. 22-23).
- The fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter (C. 5, L. 22-23 and C. 6, L. 57-59).

- An overall thickness, as a sum of fabric base thickness and the mean hook height, of less than about 0.075 inch (C. 6, L. 8-10).

- The mean hook height is less than about 0.065 inch (C. 6, L. 8-10).
- The mean hook height is less than about 0.05 inch (C. 6, L. 8-10).
- The hook filaments are drawn nylon monofilaments (C. 6, L. 57-59).
- The hook filaments are each between about 0.0065 to 0.009 inch in nominal diameter (C. 11, L. 21-25).

- The ground yarns comprise multifilament yarns each having a denier of between about 60 and 140 (C. 11, L. 18-21 and 60-62).

A woven hook fastener product includes a fabric base (2) having ground yarns and comprising interwoven warp yarns and filling yarns extending respectively in warp and filling directions and hook filaments interwoven with the fabric base and forming hooks extending from one side of the fabric base for engagement with loops (Figs. 1-7, 9 and 11). The fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter (C. 5, L. 22-23 and C. 6, L. 57-59). Higashinaka fails to disclose that a preferred embodiment where the fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter. However, it would have been obvious to one having ordinary skill in the art at the time of Applicant's invention to have the fabric base having an overall thickness, exclusive of the hook filaments, being less than the nominal hook diameter since the range of overall thickness of the base fabric varies from 0.3 mm to 3.0 mm (as disclosed on C. 5, L. 22-23) and the nominal diameter of the hook filament is 0.34 mm

(C. 11, L. 21-26) for example 10 and when considering the nominal diameter of the hook filament for example 10, the fabric base will have an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter especially since the hook filaments are not being taken into consideration in for the overall thickness of the fabric base.

Higashinaka also discloses that:

- Each hook is formed by a severed hook filament loop extending out of the fabric base at two points separated by a span, measured along a line segment between centers of the hook filament at a near surface of the fabric base, and wherein each hook has a stance ratio, defined as a ratio of the span of the hook to an overall height of the hook from the near surface of the fabric base, of at least 50 percent (Figs. 1-7, 9 and 11).
- The stance ratio is at least 55 percent (Figs. 1-7, 9 and 11).
- The fabric base has an overall thickness, exclusive of the hook filaments, of less than about 0.010 inch (C. 5, L. 22-23).
- An overall thickness, as a sum of fabric base thickness and the mean hook height, of less than about 0.075 inch (C. 6, L. 8-10).
- The mean hook height is less than about 0.065 inch (C. 6, L. 8-10).
- The hook filaments are each between about 0.0065 to 0.009 inch in nominal diameter (C. 11, L. 21-25).
- The ground yarns comprise multifilament yarns each having a denier of between about 60 and 140 (C. 11, L. 18-21 and 60-62).

Higashinaka discloses a woven loop fastener having all the features mentioned above in paragraph 4 for the rejection of claims 1 and 2. Higashinaka fails to disclose that the overall thickness is less than about 0.0075 inch. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have the overall thickness being less than about 0.0075 inch since a change in the size of a prior art device is a design consideration within the skill of the art. In re Rose, 220 F.2d 459, 105 USPQ 237 (CCPA 1955). Especially since the application does not provide any criticality to this dimension and adjusting the dimensions of loop fasteners in order to obtain better engagement with its hook fastener counterpart is well known in the art.

Higashinaka also fails to disclose whether the pile yarns are in greige condition or unnapped condition. However, it would have been obvious to one having ordinary skill in the art at the time the invention was made that the pile yarns of the woven loop fastener will either be in a greige condition or in an unnapped condition and that it would have been obvious to one having ordinary skill in the art at the time of applicant's invention to have the pile yarns in a greige or napped condition if one were to assume that the pile yarns disclosed by Higashinaka are in an unnapped condition or that the pile yarns in a unnapped condition if one were to assume that the pile yarns disclosed by Higashinaka are in an greige or napped condition because the Examiner takes official notice that the use of pile yarns in napped or greige condition and in an unnapped condition is well know in the woven loop fastener art.

Claims 35 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashinaka in view of Reither (US 6,136,437).

Higashinaka discloses a woven loop fastener and a woven hook fastener having all the features mentioned above in paragraph 3 for the rejection of claims 24 and 40. Higashinaka fails to provide the tenacity for the pile yarn filament and for the hook filament. However, Reither teaches a woven fabric made with filaments having a tenacity between 2.91 grams per denier to 4.28 grams per denier depending on the sample (Table 5 - PET). The filaments provide superior mechanical properties such as its breaking strength. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have filaments with a tenacity of at least 4.0 for the loop fastener disclosed by Higashinaka by using the PET taught by Reither that has tenacity of 4.28 grams per denier. Doing so, provides a filament with superior mechanical properties such as its breaking strength.

Claims 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashinaka in view of Suzuki et al. (US 5,294,469).

Higashinaka also fails to disclose the Gurley stiffness of the loop fastener and of the hook fastener. However, Suzuki also teaches that the loop fabric can have a stiffness of less than about 500 or 200 milligrams. This fabric is easy degradable. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a Gurley stiffness of less than about 500 or 200 milligrams and a Gurley stiffness of less than about 500 or 200 milligrams as taught by

Suzuki for the hook or loop component disclosed by Higashinaka. Doing so, provides a fabric that is easily degradable.

Claims 39 and 49 are rejected under 35 U.S.C. 103(a) as being unpatentable over Higashinaka in view of Love, III et al. (US 2005/0282452 A1).

Higashinaka discloses a woven loop fastener having all the features mentioned above in paragraph 3 for the rejection of claims 24 and 40. Higashinaka fails to disclose that the loop fastener has a basis weight being less than about 300 grams per square meter. However, Love teaches a woven loop fastener having fabric base having a weight between 3.91 oz per square yards (131 grams per square meter). This base fabric is stretchable. Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have a hook fastener or a loop fastener with a weight of about 300 grams per square meter for the loop fastener disclosed by Higashinaka in accordance with the teachings of Love. Doing so, is well known in the hook and loop fastener art as taught by Love making the base fabric stretchable.

(10) Response to Argument

(a) Rejection of claims 24-34, 36, 40-46 and 48 as being obvious over Higashinaka

Claim 24 - Ratio of hook height to filament diameter.

The Applicant argues that Higashinaka fails to disclose that the ratio of hook height to filament diameter is less than about 6.0. This argument fails to persuade. The Applicant disclosure in page 7, lines 6 and 7 states that the pile yarn filament has a diameter of 0.0085 inches or 0.2 millimeters for the preferred embodiment but it can be selected from about 0.0065 to 0.0090 inches or 0.16 to 0.23 millimeters and page 8,

lines 7 and 8 state that the average height is about 0.05 inches or 1.27 millimeters. The value obtained for the ratio of hook height to filament diameter is 6.35 when using the value of the preferred embodiment (1.27 millimeters/ 0.2 millimeters) which is considered to be less than about 6.0. Especially since "about" is usually used as a warning that exactitude is not claimed but rather a contemplated variation.

In the case of Higashinaka, several embodiments are presented in this reference. For examples 1 through 4, Higashinaka discloses that the diameter of the hook filament is 0.2 millimeters in lines 21-26 of column 11 and that the lowest height is 1.3 millimeters and these hook fasteners are formed by severing a loop. The value obtained for the ratio of hook height to filament diameter is 6.5 that can also be considered to be less than about 6.0. Additionally, Higashinaka discloses in lines 35-38 of column 11 that a heat treatment is applied to the loops in order to reduce the height of the loop fasteners from 1.3 millimeters to 1.0 millimeters and then the loop fasteners are cut to form the hook fasteners. The value obtained for the ratio of hook height to filament diameter is 5 if the final height of 1.0 millimeters is used. Other embodiments meeting the claim limitations are examples 10 and 11 having hook fasteners formed by severing a filament and heating the top of the filament to form a mushroom-shaped swollen head as the hook fastener. The Applicant argues that these embodiments fail to meet the claim limitations because the hook fasteners are not formed by the same method being disclosed in the Applicant's invention. However, the method of forming is not germane to the issue of patentability of the device itself when the prior art meets the claim limitations for the device itself. Therefore, this limitation has not been given

Art Unit: 3677

patentable weight since Higashinaka meets the device limitations of claim 24. For the example 10, the diameter of the hook filament is 0.34 millimeters in lines 61-65 of column 13 and that the height is 2.0 millimeters in lines 3-5 of column 13. The value obtained for the ratio of hook height to filament diameter is 5.9 that is less than about 6.0. For the example 11, the diameter of the hook filament is 0.34 millimeters in lines 28-31 of column 13 and that the height is 1.8 millimeters in lines 34-39 of column 13. The value obtained for the ratio of hook height to filament diameter is 5.3 that is less than about 6.0.

Claim 40 - Comparison of base thickness to filament diameter

Higashinaka discloses in lines 22-23 of column 5 that the overall thickness of the fabric base is between 0.3. to 3.0 millimeters and that the diameter of the hook filament is between 0.1 to 0.4 millimeters in lines 57-59 of column 6. The overall thickness for the fabric base is inclusive of the hook filament. Hook filaments having a nominal hook filament diameter of 0.3 millimeters meet the claim limitations when the overall thickness of the base fabric is between about 0.4 to 0.6 millimeters since the overall thickness disclosed by Higashinaka include the nominal hook filament diameter.

Similarly, the claim limitation can be met when the overall thickness of the base fabric is between 0.5 to 0.7 millimeters when considering the highest value of the hook filament diameter of 0.4 millimeters. The Applicant argues that Higashinaka fails to disclose that the fabric base has an overall thickness, exclusive of the hook filaments, that is less than the nominal hook filament diameter. The Applicant argues that Higashinaka does not meet the claim limitations since "it would be improper and a *non sequitur* to compare

Art Unit: 3677

the lower limit on the preferred range of base thickness (0.3) to the upper range of hook filament diameter (0.4) and conclude that Higashinaka discloses a hook product with a base thickness less than the hook filament diameter.” and that it is not possible to have hook filaments having a greater diameter than the base thickness. The Examiner fails to be persuaded by these arguments. The disclosure of Higashinaka never excludes the possibility of having the highest value of the hook filament diameter being used with a low value of the base thickness. During the personal interview held on 25 April 2006 and in the response to the arguments in the final rejection mailed on 03 January 2006, the Examiner clarified that the range of 0.3 to 3.0 millimeters is cited as being disclosed by Higashinaka but that the lowest value is not being considered when comparing the base thickness to the hook filament diameter since the overall thickness values need to be greater than the diameter of the hook filament being considered. As cited above, the claim limitations are met by a range of values where the lower limit is defined by a base fabric having an overall thickness between 0.4 to 0.59 millimeters when the hook filament diameter is 0.3 millimeters and the upper limit is defined by a base fabric having an overall thickness between 0.5 to 0.69 millimeters when the hook filament diameter is 0.4 millimeters.

Hook filament diameter, mm	Overall thickness of base fabric, mm	Overall thickness excluding filament diameter, mm
0.3	0.4 - 0.59	0.1 - 0.29
0.4	0.5 - 0.79	0.1 - 0.39

(b) Rejection of claims 35 and 47 as being obvious over Higashinaka in view of Reither.

The Applicant only argues that Reither fails to disclose any relevant information regarding to the low hook height or base thickness when compared to the hook filament diameter. As explained above in detail, Higashinaka discloses these claim limitations.

(c) Rejection of claims 37 and 38 as being obvious over Higashinaka in view of Suzuki.

The Applicant only argues that Suzuki fails to disclose any relevant information regarding to the low hook height or base thickness when compared to the hook filament diameter. As explained above in detail, Higashinaka discloses these claim limitations.

(d) Rejection of claims 39 and 49 as being obvious over Higashinaka in view of Love.

The Applicant only argues that Love fails to disclose any relevant information regarding to the low hook height or base thickness when compared to the hook filament diameter. As explained above in detail, Higashinaka discloses these claim limitations.

In response to the Applicant's general argument presented for (c) and (d) that "the Examiner does not address how to alter Higashinaka's fabric to achieve Love's low basis weight, or Suzuki's low Gurley stiffness" it has been hold that the test for obviousness is not whether the features of one reference may be bodily incorporated into the other to produce the claimed subject matter but simply what the combination of references makes obvious to one of ordinary skill in the pertinent art. In re Bozek, 163 USPQ 545 (CCPA 1969). In this case for Love's low basis weight, the reject recites the

Art Unit: 3677

desire for easy biodegradability as the motivation to combine Love's low basis weight with Higashinaka. As for Suzuki's low Gurley stiffness, the reject recites fabric stretchability as the motivation to combine Suzuki's low Gurley stiffness with Higashinaka.

(e) Claim objections

This issue relates to petitionable subject matter under 37 CFR 1.181 and not to appealable subject matter. See MPEP § 1002 and § 1201. Additionally, the Examiner points out that conversion between Metric units to English units is well known in the art and the need to have both values in the claim is irrelevant.

(11) Related Proceeding(s) Appendix


No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.


Respectfully submitted,

Ruth C. Rodriguez

Conferees:

Judy Swann 

Dan Stodola 


ROBERT J. SANDY
PRIMARY EXAMINER